Guiding Development to Protect Our Natural Resources



The future of northeastern Illinois, which will grow by more than 1 million residents over the next 20 years, will be shaped by many thousands of individual choices about where to live, work, and do business. These personal decisions will impact each other as residents seek to move close to jobs, and businesses close to their suppliers, workers, and customers. The future will also be influenced by decisions about investment and regulation by the region's 1200 local governments and state and federal agencies.

Will these public and private choices reinforce or undermine each other? Will the decisions move us toward the future we want? Ensuring that they do is the essence of NIPC's comprehensive planning program, entitled *Common Ground: A Blueprint for Regional Action.* The Commission's broad goal in undertaking *Common Ground* is to help the region develop a shared vision for its future, identify common issues and concerns, and make mutual commitments to address them.

Increased public understanding of and involvement in the regional planning process is critical to the success of *Common Ground*. This series of publications, *Building a Regional Framework*, is designed to educate the public about particular issues and spark greater public input into the regional planning process.

Other publications in this series have assessed particular policy tools needed to accomplish the goals of *Common Ground*. This report, "Guiding Development to Protect our Natural Resources," highlights the importance of natural resources to all of our development decisions.

Unwise management of these resources, as has sometimes happened in the past, will create new financial burdens. Sustainable management and restoration, following the techniques outlined within, will enhance our quality of life and make our region a more desirable place to live, work, and recreate.

The *Building A Regional Framework* series is just one step in NIPC's effort to spur public participation. In the coming months, we will continue to sponsor public forums and workshops to provide greater public involvement in determining a vision for our shared future. We look forward to your reaction to the ideas presented in these publications and your participation in our new, community-based planning process.

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ABOUT THE NORTHEASTERN ILLINOIS PLANNING COMMISSION

NIPC was created by the state legislature in 1957 to lead comprehensive planning for the northeastern part of Illinois. NIPC is committed to finding regional consensus on policies and plans that promote the sound and orderly development of northeastern Illinois. It serves the local governments of the region by providing information, fosters regional cooperation in the comprehensive planning process, develops policies on evolving areawide issues, and seeks maximum local participation in its deliberations.

October 2001

This report was funded in part by the U.S. Department of Transportation through a grant from the Illinois Department of Transportation; by the State of Illinois through a grant from the Illinois Department of Commerce and Community Affairs; and by voluntary contributions from local governments in northeastern Illinois.

Natural Resource Protection

Northeastern Illinois enjoys both abundant natural resources and a thriving economy. These amenities can be mutually supportive if development is guided by progressive and sustainable planning principles. But our history suggests reason for caution.

Much of the land in northeastern Illinois has been transformed from wetlands, prairies, savannas, and woodlands into farmland and, more recently, into urban and suburban uses. Today, approximately 8 million people live in the region's 6 counties.

Between 1970 and 1990, approximately one-quarter of the farmland in the region—more than 400 square miles—was lost to development. During that same period, the region had a 4% increase in population and a 35% increase in land devoted to urban uses—an area twice the size of the City of Chicago.

While the region obviously has lost much of its natural lands, over 200,000 acres of natural land, or 10% of the region, is protected today. A statewide *Natural Areas Inventory*, which located and mapped natural areas of moderate to high quality, showed that while only 0.07% of Illinois land was still in natural condition, 25% of it was in our region. This achievement is due, in part, to the recommendations of Burnham and Bennett's *Plan of Chicago*, which encouraged establishing the forest preserve system, and the subsequent open space acquisitions of forest preserve districts and state and federal agencies.

In the face of an increasing population, the region's challenge is to combine environmental protection with balanced and cost-effective development. By creating development policies and regulations that protect the environment, the negative impacts of development can be minimized. Examples of such policies can be found in the *Biodiversity Recovery Plan* published by Chicago Wilderness, which is a consortium of over 130 organizations dedicated to protecting, restoring, and enhancing our natural communities.

In a similar vein, NIPC produced a *Strategic Plan for Water Resource Management*. This plan is a guide for addressing the region's interrelated water resource issues—water quality, water supply, and stormwater and flooding—in a proactive, multi-objective manner.

"Everyone is entitled to a

home where the sun,

the stars, open fields,

giant trees, and smiling

flowers are free to

teach an undisturbed

lesson of Life. Herein

lies my task."

-Jens Jensen, Landscape Architect

Protected Natural Land in Northeastern Illinois



Types of Protected Natural Land as Identified in the Chicago Wilderness Biodiversity Recovery Plan

Savanna (Oak Woodland)	13,663 acres
Floodplain Forest	11,727 acres
Upland Forest/Woodland	24,177 acres
Prairie	13,922 acres
Wetland	26,527 acres
Open Water	13,385 acres
Unassociated Woody	17,497 acres
Unassociated Grassy	43,708 acres

Clean Air Counts is an another important program. This regional initiative, a collaboration between the Metropolitan Mayors Caucus, Illinois Environmental Protection Agency, US Environmental Protection Agency, and the Delta Institute, aims to improve air quality by reducing ozone-causing and smog-forming pollutants, and to reduce energy consumption. Begun in 2000, Clean Air Counts is organized into five campaigns aimed at different constituencies: businesses, industries and institutions, communities (e.g., municipal governments), land use and development, households, and state and federal governments (Clean Air Illinois).

Because of initiatives like Chicago Wilderness, there is a growing recognition that our region's natural land-scapes—including oak savannas, tallgrass prairies, and dune and swale systems—are nationally significant. They provide habitat for more than 1,500 species of native plants and animals.

Many people feel a moral and ethical responsibility to protect the region's land and waters while accommodating sustainable development. This is clear both from recent public opinion surveys and from county land acquisition referenda indicating that the public supports local government initiatives for natural resource protection. Local governments also recognize the value of natural lands through their efforts to establish buffers, greenways, and pocket parks.

Northeastern Illinois has a unique opportunity to become one of the first metropolitan areas in the world to address the protection and restoration of natural landscapes and biodiversity on a regional scale. Numerous agencies, organizations, and individuals have joined in efforts to preserve and enhance our unique landscape.

Specific Benefits

Traditionally, natural resources have been recognized for providing water supply, flood prevention, and crop production while enhancing our quality of life. There are many specific benefits associated with the protection of natural resources. A more expansive list of the currently recognized benefits follows:

- Mitigation of flooding and stormwater runoff.
- Biodiversity protection.
- Increased opportunities for outdoor recreation and tourism.
- Protected natural buffers between developed areas.
- Increased opportunities for environmental education.
- Better air and water quality.
- > Higher property values.
- Beautified natural settings and open spaces.
- Closer proximity of nature to home and work.
- Increased pride in the region.
- Renewed appreciation for landscape heritage, such as Lake Michigan, oak savannas, and tall grass prairies.

Sustainable development is a broad planning goal for NIPC. The above benefits, when achieved together in balance, provide a framework for "sustainable development," as described in this report. Sustainable development is defined as actions that result in an integration of economic, environmental, and community health, so that no one action be done at the expense of the others. In addition, sustainable development is a commitment to development that considers the consequences of our actions today on future generations. Using renewable resources, recycled materials, and healthy building practices will be more sustainable, now and in the future for both our natural resources and the communities in which we live and work.



Outdoor recreation



Biodiversity protection



Beautified natural setting

Issues Facing the Region

The benefits of protected natural resources are obvious.

These resources are being seriously impacted by agricultural and urban development. Some of the key natural resource issues are described below:

Destruction and Fragmentation of Natural Habitats

Natural habitats and the biodiversity of plant and animal life they support are directly impacted by development. Illinois has lost 90% of its wetlands and over 99% of its prairies to development. More than 40% of the streams in northeastern Illinois have been severely altered by channelization and berming.

Even when open space acquisition, land use plans, and regulations are effective in preserving some natural lands, these areas are likely to be small and fragmented. Consequently, plant and animal species that need large, connected habitats for survival will be lost.

Fire is an integral element that has shaped and sustained the natural ecosystems of the region. The suppression of natural fires, which began soon after European settlement, has greatly reduced the viability of fire-dependent ecological communities, such as prairies. Suppression of fire also has exacerbated the spread of invasive non-native plant species, such as European buckthorn. These non-native species are crowding out our native plant communities and even threatening centuries-old oak woodlands. While ongoing urbanization is not the direct cause of fire suppression and plant invasions, it can make managing natural areas more difficult.

Hydrology Water Flow Patterns

The replacement of permeable landscape features (woodlands, prairies, wetlands, and farmland) with impervious surfaces (roads, roofs, and parking lots) decreases the capacity of the land to retain and absorb rainwater and snowmelt.

We are all downstream.

-Ecologist's Motto

Even the remaining pervious areas, particularly lawns, lose their natural water holding capacity due to compaction during construction and loss of deep-rooted native vegetation. The end result is substantially more surface stormwater runoff following rains and reduced recharge of groundwater and baseflows to streams and wetlands.

Flooding and Floodplains

The average annual damage resulting from flooding in the region is \$39 million. Local stormwater regulations that require detention for new development should effectively limit future flooding increases in small watersheds. However, flooding is projected to worsen along large rivers like the Des Plaines and the Fox as a result of increased runoff from new developments.

Aquatic Ecosystems—Streams and Wetlands

The region has some of the highest quality streams in the state, but almost all of them are located in its outer periphery. Where substantial development has occurred, stream quality has been degraded and the most sizeable streams are not meeting the goals of the Clean Water Act for fishing and safe swimming. There are concerns that this type of degradation will spread as development radiates outward.

Wetlands cover approximately 80,000 acres, nearly 4% of the region's area. However, only about 26,000 acres are protected through public ownership, and many wetland areas are threatened by new development. In particular, wetlands that are isolated from streams and major drainageways are no longer protected by federal regulations. Also, altered hydrology and urban drainage practices affect the source, quantity, and quality of water that is critical to healthy wetland function and survival.

"The need for breathing spaces and recreation

grounds is being forced upon

the attention of practical men,

who are learning to appreciate

the fact that a city, in order to

be a good labor market, must

provide for the health and

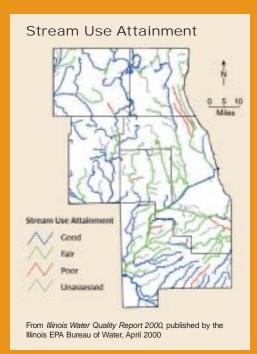
pleasure of the great body

of workers."

—Daniel Burnham, Plan of Chicago, 1909

Water Quality

Stormwater collects various chemicals associated with urban development, including sediment, fertilizers, herbicides, pesticides, organic matter, and various toxins and pathogens. Even well-treated wastewater discharges contribute excessive quantities of nutrients that can damage aquatic ecosystems. As a consequence, few regional urban or suburban streams and rivers meet desired aquatic life or recreational use objectives.



Use attainment ratings for streams within the six county region are based on an overall evaluation of how well each stream supports its designated uses such as swimming, aquatic life and/or secondary contact. Streams are categorized as unassessed if there is no monitoring data or if this data is more than 15 years old.



Projections derived from census 1998 population estimates, NIPC September 2000 forecast, water availability estimates by IDNR/SWS and Harza Engineering, and per capita water demand estimates provided by Harza Engineering.

Water Supply

While Lake Michigan is the source of water supply for the majority of the region's residents, permitted allocations are nearing their limit. Most of the anticipated increase in population and employment will therefore be dependent on groundwater or inland surface waters, such as the Fox River. Protection of these supplies will be a major challenge in the face of land development, which historically has had adverse impacts on both the quantity of available ground water—due to reduction in natural recharge—and the quality of both surface and groundwater. Consequently, existing ground water supplies for McHenry, Kane, and Will counties along with parts of Lake County, may not be adequate to meet the projected need.

Loss of Agricultural Land

Between 1970 and 1990, over 400 square miles of farmland were lost to development, representing nearly one-quarter of the farmland in the region. Preliminary studies of the potential impacts of the 2020 forecast have shown that over 700 square miles of the remaining farmland will be subject to development by 2020, and that roughly 5% of the region's development will occur in designated agricultural protection areas. Some of this land is the best farmland in the world.

These issues emphasize the region's critical need to manage growth to protect our natural resources and sustain our communities today and in the future.

Strategies

New approaches are needed to avoid the adverse impact on our natural resources caused by development and to take advantage of opportunities to restore degraded landscapes and ecosystems. The recommended strategies are based on the principle of long-term sustainability that integrates environmental protection and restoration with financial feasibility and community goals.

Develop Comprehensive Land Use Plans

- Establish a "green infrastructure vision" and provide a framework for zoning, development ordinances, capital improvements, and open space preservation. Green infrastructure, including open space, greenways, water resources, and biodiversity, should be carefully planned with conventional grey infrastructure, such as roadways, utilities, and commercial development.
- Inventory, map, and prioritize natural resources and environmentally sensitive areas.
- Coordinate efforts with neighboring communities, environmental protection organizations, agencies, and institutions.

Adopt Policies and Ordinances to Sustain Natural Resources

- Develop policies, plans, and ordinances to protect natural resources in developing areas and to minimize the impact of development on off-site properties, such as downstream communities.
- Consider the natural functions of the landscape through all phases of a project, from design through construction and landscaping.
- > Promote conservation by using sustainable development and site-design techniques.
- Review and amend zoning and subdivision codes to allow and encourage non-traditional approaches, such as clustering and natural landscaping.

Preserve and Restore Open Space

- ➤ Implement the recommendations of the Chicago Wilderness *Biodiversity Recovery Plan.*
- > Preserve natural lands through incentive programs, land purchases, land transfer, developer donations, and conservation easements.
- Manage and restore natural lands by controlling invasive species and utilizing fire as a management tool.



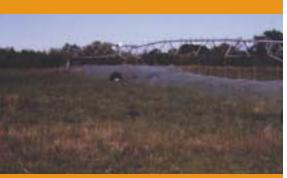
Nippersink Creek storm corridor protection



McKee Marsh



Tellabs swale



"The Fields" wastewater irrigation

Protect Greenways

- Identify linear corridors along waterways and abandoned railroads to serve as connectors between open spaces that can help to provide a continuous route for wildlife.
- > Encourage private landowners to protect and restore their holdings.

Develop Sustainable Wastewater Facilities

- Explore and implement wastewater management options, such as reuse, land application, and wetland polishing, that both minimize impacts on affected waterways and maximize the resource value of treated wastewater.
- Integrate wastewater plans with comprehensive land use plans and coordinate them with neighboring jurisdictions.

Develop Multi-Objective Watershed Protection Plans

- Organize community efforts and coordinate them with neighboring local governments. Develop a framework for the plan:
 - Establish goals and objectives.
 - Inventory watershed resources and conditions.
 - Analyze watershed problems.
 - Recommend actions and best management practices (BMPs) for remediation and prevention of problems.
 - Develop an effective action plan.
 - Implement the plan and monitor its success.

Protect Valued Agricultural Land

- Change public and government perceptions of agriculture.
- Promote sustainable development techniques that reduce land consumption.
- Implement reimbursement and compensation programs for agricultural protection.
- Modify the current framework of state and local policies.

Communities

"What I'm trying to do in the city is to make good habitat for nature and people. We didn't used to allow nature to exist in a small park. But we can. I want to bring more nature into parks and boulevards so they can be habitat for trees, birds, flowers, and people. The neighborhoods and schools need to be comfortable and green."

-Chicago Mayor Richard M. Daley

Natural Landscaping: Matteson Village Hall and Green

The Village of Matteson has built a new Village Hall and Green, a 6-acre multiuse site that will eventually include residential, office, and retail space. The new development is sensitive to the environment, using a planning concept called sustainable design. This concept combines landscape and building designs that are more sensitive to the natural environment. Landscaping on the green will be reminiscent of the Midwestern prairie landscape, including native prairie grasses and wildflowers that require less maintenance and are more resilient to weather extremes than other types of landscaping. The new Village Green will also incorporate expansive parkland, ponds, walkways, benches, and natural areas to buffer street traffic. There will also be an amphitheater with a plaza and gathering space for concerts and public events.

Wetland Polishing of Wastewater: Village of Frankfort

The Village of Frankfort applied for a wastewater facility planning amendment in 1994 to construct a regional treatment facility and upgrade its west treatment plant. Because this facility would ultimately discharge 3 million gallons per day into Hickory Creek, one of the higher quality aquatic ecosystems in the region, NIPC recommended that the Village evaluate the construction of a wetland polishing system to ensure a consistent, high quality effluent. After concluding that this option was feasible, the Village constructed an 8-acre wetland area adjoining its regional plant. This constructed wetland conveys the treated effluent from the regional plant through a series of shallow wetland ponds and swales. The restored wetland and adjacent trail system routinely attract local residents, including local high school students who are proposing to incorporate wetland monitoring into their environmental science curriculum. The wetland site is partially owned by the Forest Preserve District of Will County and is managed by the Village.

Conservation Development: Prairie Crossing, Village of Grayslake

Prairie Crossing is an innovative, large-scale, clustered residential development in which natural landscaping is a major design component. Nearly 175 acres of native prairies and wetlands are being restored within and around the residential areas of the development. These areas, in addition to their ecological and aesthetic benefits, serve as part of an alternative stormwater management system that utilizes the natural abilities of these systems to cleanse stormwater. The environmentally friendly development design has provided additional benefits such as reduced infrastructure and maintenance costs, involvement of the development's residents, local and national media attention, and use of the open spaces and restored landscapes by wildlife.

Wetland Protection Overlay District: Village of Schaumburg

The Village of Schaumburg enacted a wetland protection overlay district as part of its zoning ordinance. This ordinance requires a special use permit for construction within the overlay district and establishes the conditions under which a permit may be granted if impacts on wetlands are minimized. The ordinance establishes development standards for construction proposed in or within 100 feet of a wetland and requires a series of reports regarding soil characteristics, site grading and excavation, hydrological controls, and vegetation.



Matteson Village Hal



Frankfort



Prairie Crossing, Gravslake

Natural Areas Education: City of Chicago

The City of Chicago Department of Environment has numerous programs aimed at educating the public and involving them in nature. Some of these programs are listed below.

- The North Park Village Nature Center is a 46-acre nature preserve and educational facility. The Center's mission is to provide urban citizens with an opportunity to interact with wildlife, plants, and other natural resources through environmental education and access to restored native landscapes.
- > The City encourages public involvement in nature walks, star gazing, storytelling, family fun days, school programs, teacher enhancement opportunities, volunteer stewardship activities, ecosystem restoration, and other programs for children, adults, and seniors.
- The Nature Chicago program includes nature trails, trail guides for self-guided tours, and interpretative signage describing the plant and animal species to be found in Chicago's natural areas.
- The Chicago Public Libraries' Nature Connections program presents children with natural history and science materials and brings the resources of Chicago's museums and nature institutions into neighborhoods through branch and school libraries.
- > Festivals, after-school park programs, and volunteer opportunities pertaining to nature and the natural environment occur regularly everywhere in Chicago. These activities include a natural art show, bike tours, canoe outings, a river cruise, a nature festival in Daley Plaza, a harvest festival at North Park Village Nature Center, bird and nature walks, after school activities, summer camps, a seminar series, and the Peggy Notebaert Nature Museum.

Sustainable Land Use Planning: Village of New Lenox

The Village of New Lenox, with a population of about 13,000, provides a good example of a small but growing community that uses a comprehensive plan to incorporate natural areas and open space into its vision of the future. The Village recognizes that these elements in the community will promote environmental well being, provide natural corridors for wildlife migration, optimize aesthetic benefits, enhance community form, and provide a sense of community identity. Preserving and linking open space and natural features is a common goal for all development activities.

Watershed Protection: City of Crystal Lake

The water that fills Crystal Lake originates solely within a local watershed as runoff and groundwater flow. The City of Crystal Lake has enacted a watershed zoning regulation to protect the Crystal Lake aquifer recharge areas, to improve the quality of surface and sub-surface discharges to the lake, and to reduce accumulated nutrients in the lake. This regulation designates specific requirements for development and other activities within the watershed. These requirements include the following:

- Maintenance of groundwater flows and levels;
- Development designs that preserve natural drainage patterns and groundwater recharge; and
- Preservation of natural stormwater detention areas through acquisition or dedication.

Creek Restoration: Flint Creek, Barrington Area

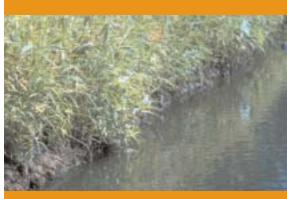
This project involved the stabilization of eroded stream banks in several communities in southwestern Lake County. Projects were implemented by four entities: the Villages of Barrington and Lake Zurich, the Lake County Forest Preserve District, and Citizens for Conservation (a local land conservation group). The objectives of the restoration were to stabilize eroding channel banks and to remove excessive debris and non-native trees and shrubs that were shading out understory vegetation and blocking stream flows. After undesirable woody vegetation was removed, a combination of "soil bio-engineering" techniques were installed to stabilize the streambanks. Treatments ranged from vegetative stabilization in the least severe erosion zones to the installation of evolving techniques ("A-Jacks", "coconut fiber rolls", and "lunker" structures), in combination with native vegetation and erosion blankets on more severely eroded banks. All of the stabilized sites have subsequently withstood severe flooding conditions.

Improved Wastewater Treatment: Mill Creek, Kane County

The more than 1500-acre Mill Creek development in south-central Kane County incorporates many elements of conservation design recommended in the *Kane County 2020 Land Resource Management Plan.* Design elements include clustering, a 40% open space set-aside, greenway dedication to the Kane County Forest Preserve District, and naturalized stormwater management practices. These were recommended because the Mill Creek development is located in the county's "critical growth" area and spans Mill Creek, a relatively high quality tributary of the Fox River. Consistent with its conservation design theme, the development incorporates a land application system for wastewater disposal, avoiding the need for a conventional treatment plant with surface discharges to Mill Creek. When the development is complete, approximately 650,000 gallons per day of wastewater will be recycled to irrigate 167 acres of the local golf course.



Crystal Lake



Flint Creek, Barringtor

Resources

American Planning Association 122 South Michigan Avenue, Suite 1600 Chicago, Illinois 60603 Telephone 312-431-9100

American Society of Landscape Architects Illinois Chapter P. O. Box 4566 Oakbrook, Illinois 60522 Telephone 630-431-9100

Campaign for Sensible Growth 222 South State Street, Suite 1800 Chicago, Illinois 60604 Telephone 312-922-5616

Chicago Botanic Garden 1000 Lake Cook Road, P. O. Box 400 Glencoe, Illinois 60022-0400 Telephone 847-835-5440

Chicago Wilderness 8 South Michigan Avenue, Suite 900 Chicago, Illinois 60603 Telephone 312-346-2540, ext. 30

The Conservation Foundation 10 S 404 Knoch Knolls Road Naperville, Illinois 60565

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600 North Grand Avenue West P.O. Box 19225 Springfield, Illinois 62794-9225

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IDNR Division of Natural Heritage Telephone 217-785-8774

IDNR Division of Wildlife Telephone 217-782-6384

IDNR Division of Fish Telephone 217-782-6424

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IDNR Ecosystem Program Telephone 217-782-7940

Illinois Environmental Protection Agency Bureau of Water P.O. Box 19276 Springfield, Illinois 62794-9276 Telephone 217-782-3362

The Morton Arboretum Route 53, Lisle, Illinois 60532 Telephone 630-719-2427

The Nature Conservancy 8 South Michigan Avenue, Suite 900 Chicago, Illinois 60603 Telephone 312-346-8166 Northeastern Illinois Planning Commission (NIPC) 222 South Riverside Plaza, Suite 1800 Chicago, Illinois 60606 Telephone 312-454-0400

Openlands Project / Corlands 25 East Washington Street, Suite 1650 Chicago, Illinois 60602 Telephone 312-427-4256

Soil and Water Conservation Districts

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Lake County 100 North Atkinson, Suite 102A Grayslake, Illinois 60030 Telephone 847-223-1056

North Cook County 675 North Court, Suite 120 Palatine, Illinois 60067-8106 Telephone 847-468-0071

McHenry County 1143 North Seminary Avenue, Box 168 Woodstock, Illinois 60098 Telephone 815-338-0099

Will/South Cook Counties 1201 South Gougar Road New Lenox, Illinois 60451 Telephone 815-462-3106

The Trust for Public Land Chicago Field Office 53 West Jackson, Suite 1663 Chicago, Illinois 60604 Telephone 312-427-1979

U.S. Department of Agriculture P.O. Box 19273 Springfield, Illinois 62974-9273 Telephone 217-492-4180

U.S. Department of Agriculture Natural Resources Conservation Service For NRCS district offices see Soil

For NRCS district offices see Soil and Water Conservation District office contacts.

U. S. Department of the Interior Fish and Wildlife Service Chicago Metro Office 1000 Hart Road, Suite 180 Barrington, Illinois 60010 Telephone 847-381-2253

U.S. Environmental Protection Agency, Region 5 77 West Jackson Boulevard Chicago, Illinois 60604 Telephone 312-353-2000

Related NIPC Publications

For complete publications list, see NIPC website: www.nipc.cog.il.us

Northeastern Illinois Regional Greenways Plan. NIPC and Openlands Project, 1997.

Protecting Nature in Your Community: A Guidebook for Preserving and Enhancing Biodiversity. March 2000.

Reducing the Impacts of Urban Runoff: The Advantages of Alternative Site Design Approaches. April 1997.

Natural Landscaping Sourcebook for Public Officials. May 1997.

Environmental Considerations in Comprehensive Planning–A Manual for Local Officials. March 1994

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Best Management Practice Guidebook for Urban Development. July 1992.

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A Guide to Illinois Lake Management. June 1991.

Model Floodplain Ordinance. updated July 1996.

Model Stormwater Drainage and Detention Ordinance. July 1990, updated July 1994.

Model Stream and Wetland Protection Ordinance. 1988.

Model Soil Erosion and Sediment Control Ordinance. September 1991.

Model Watershed Management Strategy for the Control of Urban Waterbody Use Impairments in Lake County, Illinois. July 1994.

Credits

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